

4/10/03

US 5,966,286

09/976912

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Search statement 1

?us5966286/pn

\*\* SS 1: Results 1

Search statement 2

?prt fu legalall max

1/1 PLUSPAT - (C) QUESTEL-ORBIT  
PN - US5966286 A 19991012 [US5966286]  
TI - (A) Cooling system for thin profile electronic and computer devices  
PA - (A) INTEL CORP (US)  
PA0 - Intel Corporation, Santa Clara CA [US]  
IN - (A) ADAMS DANIEL THOMAS (US); KAST MICHAEL ANDREW (US); BHATIA RAKESH (US); HALEY KEVIN (US); O'CONNOR MICHAEL (US)  
AP - US65885696 19960531 [1996US-0658856]  
PR - US65885696 19960531 [1996US-0658856]  
IC - (A) H05K-007/20  
EC - G06F-001/20P  
- H05K-007/20B2B  
PCL - ORIGINAL (O) : 361699000; CROSS-REFERENCE (X) : 165080300 165104330  
361687000 438106000  
DT - Corresponding document  
CT - US4595338; US4706739; US4780062; US5008582; US5089935; US5267122;  
US5339214; US5383340; US5430609; US5494098; US5513070; US5598320;  
US5615084; US5646824; EP572326 A2; JP451994; JP5-259673  
STG - (A) United States patent  
AB - An apparatus and method for removing heat from a heat generating component located within a thin-profile consumer electronic or computer system enclosure is disclosed. In one embodiment the cooling system of the present invention includes an air duct comprising a thermally conductive housing having internal fins dispersed along the internal walls of the duct. An air flow generator produces an air flow that is directed from an inlet port located at or near the center of the air duct to first and second exit ports located at opposite ends of the duct. A low resistance thermal path, such as a heat pipe, transfers heat from the heat generating component to the air duct housing.

1/1 LGST - (C) LEGSTAT  
PN - US 5966286 [US5966286]  
AP - US 658856/96 19960531 [1996US-0658856]  
DT - US-P  
ACT - 19960531 US/AE-A  
APPLICATION DATA (PATENT)  
{US 658856/96 19960531 [1996US-0658856]}  
- 19960531 US/AS02  
ASSIGNMENT OF ASSIGNOR'S INTEREST

4/10/03

US 5,966,286

09/976912

INTEL CORPORATION 2200 MISSION COLLEGE BLVD. SANTA CLARA, CALIFORNIA  
95052 \* O'CONNOR, MICHAEL : 19960531; ADAMS, DANIEL THOMAS : 19960531;  
KAST, MICHAEL ANDREW : 19960531

- 19960812 US/AS02

ASSIGNMENT OF ASSIGNOR'S INTEREST

INTEL CORPORATION 2200 MISSION COLLEGE BLVD. SANTA CLARA, CALIFORNIA  
95052 \* O'CONNOR, MICHAEL : 19960730; HALEY, KEVIN : 19960806; BHATIA,  
RAKESH : 19960730

- 19991012 US/A

PATENT

- 20021203 US/RF

REISSUE APPLICATION FILED

20020514

UP - 2002-50

1/1 CRXX - (C) CLAIMS/RRX

AN - 3216154

PN - 5,966,286 A 19991012 [US5966286]

PA - Intel Corp

PT - E (Electrical)

ACT - 20020514 REISSUE REQUESTED

ISSUE DATE OF O.G.: 20021203

REISSUE REQUEST NUMBER: 09/976912

EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 2835

Reissue Patent Number:

UP - 2002-49

UACT- 2002-12-03

Search statement 2

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For information on content, (...)INFO INPD.

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1 Patent Groups

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1/5 INPADOC - (C) INPADOC

PN - AU 29999/97 A1 19980105 [AU9729999]

TI - COOLING SYSTEM FOR THIN PROFILE ELECTRONIC AND COMPUTER DEVICES

Stic EIC 2800

Darcy Bates 306-5419

4/10/03

US 5,966,286

09/976912

IN - O'CONNOR MICHAEL; HALEY KEVIN; BHATIA RAKESH; ADAMS DANIEL THOMAS;  
KAST MICHAEL ANDREW  
PA - INTEL CORP  
AP - AU 29999/97-A 19970506 [1997AU-0029999]  
PR - US 658856/96-A 19960531 [1996US-0658856]  
- WO 9707788/97(US)-W 19970506 [1997WO-US07788]  
IC - H05K-007/20

2/5 INPADOC - (C) INPADOC  
PN - AU 77269/96 A1 19980105 [AU9677269]  
TI - COOLING SYSTEM FOR THIN PROFILE COMPUTER ELECTRONICS  
IN - O'CONNOR MICHAEL; HALEY KEVIN; BHATIA RAKESH; ADAMS DANIEL T; KAST  
MICHAEL A  
PA - INTEL CORP  
AP - AU 77269/96-A 19961114 [1996AU-0077269]  
PR - US 658856/96-A 19960531 [1996US-0658856]  
- WO 9618075/96(US)-W 19961114 [1996WO-US18075]  
IC - H05K-007/20

3/5 INPADOC - (C) INPADOC  
PN - US 5966286 A 19991012 [US5966286]  
TI - COOLING SYSTEM FOR THIN PROFILE ELECTRONIC AND COMPUTER DEVICES  
IN - O'CONNOR MICHAEL [US]; HALEY KEVIN [US]; BHATIA RAKESH [US]; ADAMS  
DANIEL THOMAS [US]; KAST MICHAEL ANDREW [US]  
PA - INTEL CORP [US]  
AP - US 658856/96-A 19960531 [1996US-0658856]  
PR - US 658856/96-A 19960531 [1996US-0658856]  
IC - H05K-007/20

1/1 LEGALI - (C) LEGSTAT  
PN - US 5966286 [US5966286]  
AP - US 658856/96 19960531 [1996US-0658856]  
DT - US-P  
ACTE- 19960531 US/AE-A  
APPLICATION DATA (PATENT)  
{US 658856/96 19960531 [1996US-0658856]}  
- 19960531 US/AS02  
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KAST, MICHAEL ANDREW : 19960531  
- 19960812 US/AS02  
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RAKESH : 19960730  
- 19991012 US/A  
PATENT  
- 20021203 US/RF  
REISSUE APPLICATION FILED  
20020514  
UP - 2002-50

4/5 INPADOC - (C) INPADOC  
PN - WO 9746067 A1 19971204 [WO9746067]

4/10/03

US 5,966,286

09/976912

TI - COOLING SYSTEM FOR THIN PROFILE COMPUTER ELECTRONICS  
LA - ENG  
IN - O'CONNOR MICHAEL [US]; HALEY KEVIN [US]; BHATIA RAKESH [US]; ADAMS DANIEL T [US]; KAST MICHAEL A [US]  
PA - INTEL CORP [US]; CONNOR MICHAEL O [US]; HALEY KEVIN [US]; BHATIA RAKESH [US]; ADAMS DANIEL T [US]; KAST MICHAEL A [US]  
AP - WO US 9618075/96(US)-A 19961114 [1996WO-US18075]  
PR - US 658856/96-A 19960531 [1996US-0658856]  
IC - H05K-007/20  
DS - AL\* AM\* AT\* AU\* AZ\* BA\* BB\* BG\* BR\* BY\* CA\* CH\* CN\* CU\* CZ\* CZ\*  
DE\* DE\* DK\* DK\* EE\* EE\* ES\* FI\* FI\* GB\* GE\* HU\* IL\* IS\* JP\* KE\* KG\*  
KP\* KR\* KZ\* LC\* LK\* LR\* LS\* LT\* LU\* LV\* MD\* MG\* MK\* MN\* MW\* MX\* NO\*  
NZ\* PL\* PT\* RO\* RU\* SD\* SE\* SG\* SI\* SK\* SK\* TJ\* TM\* TR\* TT\* UA\* UG\*  
US\* UZ\* VN\* AM\* AZ\* BY\* KG\* KZ\* MD\* RU\* TJ\* TM\* KE LS MW SD SZ UG AT  
BE CH DE DK ES FI FR GB GR IE IT LU MC

1/1 LEGALI - (C) LEGSTAT

PN - WO 9746067 [WO9746067]

AP - WO 9618075/96(US) 19961114 [1996WO-US18075]

DT - WO-P

ACTE- 19961114 WO/AE-A

APPLICATION DATA

{WO 9618075/96(US) 19961114 [1996WO-US18075]}

- 19971204 WO/AK-A1 [+]

DESIGNATED STATES CITED IN A PUBLISHED APPLICATION WITH SEARCH REPORT  
AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ CZ DE DE DK DK EE EE  
ES FI FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG  
MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SK TJ TM TR TT UA UG US  
UZ VN AM AZ BY KG KZ MD RU TJ TM

- 19971204 WO/AL-A1 [+]

DESIGNATED COUNTRIES FOR REGIONAL PATENTS CITED IN A PUBLISHED  
APPLICATION WITH SEARCH REPORT

KE LS MW SD SZ UG AT BE CH DE DK ES FI FR GB GR IE IT LU MC

- 19971204 WO/A1 [+]

PUBLICATION OF THE INTERNATIONAL APPLICATION WITH THE INTERNATIONAL  
SEARCH REPORT

- 19980205 WO/DFPE

REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH  
MONTH FROM PRIORITY DATE

- 19980325 WO/121

EP: PCT APP. ART. 158 (1)

- 19990305 WO/NENP

NON-ENTRY INTO THE NATIONAL PHASE IN:

JP 97542296

<JP>

- 19990401 WO/REG; DE/8642 [-]

DE: IMPACT ABOLISHED FOR DE

<DE>

- 19990922 WO/122

EP: PCT APP. NOT ENT. EUROP. PHASE

- 19991130 WO/NENP

NON-ENTRY INTO THE NATIONAL PHASE IN:

CA

<CA>

UP - 2000-02

5/5 INPADOC - (C) INPADOC

4/10/03

US 5,966,286

09/976912

PN - WO 9746068 A1 19971204 [WO9746068]  
TI - COOLING SYSTEM FOR THIN PROFILE ELECTRONIC AND COMPUTER DEVICES  
LA - ENG  
IN - O'CONNOR MICHAEL [US]; HALEY KEVIN [US]; BHATIA RAKESH [US]; ADAMS DANIEL THOMAS [US]; KAST MICHAEL ANDREW [US]  
PA - INTEL CORP [US]; CONNOR MICHAEL O [US]; HALEY KEVIN [US]; BHATIA RAKESH [US]; ADAMS DANIEL THOMAS [US]; KAST MICHAEL ANDREW [US]  
AP - WO US 9707788/97(US)-A 19970506 [1997WO-US07788]  
PR - US 658856/96-A 19960531 [1996US-0658856]  
IC - H05K-007/20  
DS - AL\* AM\* AT\* AU\* AZ\* BA\* BB\* BG\* BR\* BY\* CA\* CH\* CN\* CU\* CZ\* CZ\*  
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UG\* US\* UZ\* VN\* YU\* AM\* AZ\* BY\* KG\* KZ\* MD\* RU\* TJ\* TM\* GH KE LS MW SD  
SZ UG AT BE CH DE DK ES FI FR GB GR IE

1/1 LEGALI - (C) LEGSTAT

PN - WO 9746068 [WO9746068]  
AP - WO 9707788/97(US) 19970506 [1997WO-US07788]  
DT - WO-P  
ACTE- 19970506 WO/AE-A  
APPLICATION DATA  
(WO 9707788/97(US) 19970506 [1997WO-US07788] )  
- 19971204 WO/AK-A1 [+]  
DESIGNATED STATES CITED IN A PUBLISHED APPLICATION WITH SEARCH REPORT  
AL AM AT AT AU AZ BA BB BG BR BY CA CH CN CU CZ CZ DE DE DK DK EE EE  
ES FI FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD  
MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SK TJ TM TR TT UA UG  
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- 19971204 WO/AL-A1 [+]  
DESIGNATED COUNTRIES FOR REGIONAL PATENTS CITED IN A PUBLISHED  
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GH KE LS MW SD SZ UG AT BE CH DE DK ES FI FR GB GR IE  
- 19971204 WO/A1 [+]  
PUBLICATION OF THE INTERNATIONAL APPLICATION WITH THE INTERNATIONAL  
SEARCH REPORT  
- 19980325 WO/121  
EP: PCT APP. ART. 158 (1)  
- 19980520 WO/122  
EP: PCT APP. NOT ENT. EUROP. PHASE  
- 19980924 WO/REG; DE/8642 [-]  
DE: WITHDRAWAL  
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- 19990131 WO/NENP  
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<CA>  
UP - 1999-18

Source: [Legal > Area of Law - By Topic > Patent Law > Patents > U.S. Patents > Utility Patents](#) (i)  
Terms: [patno=5966286](#) ([Edit Search](#))

658856 (08) 5966286 October 12, 1999

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT  
**5966286**

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October 12, 1999

Cooling system for thin profile electronic and computer devices

**REISSUE:** May 14, 2002 - Reissue Application filed Ex. Gp.: 2835; Re. S.N. 09/976,912  
(O.G. December 3, 2002)

**INVENTOR:** O'Connor, Michael, Cupertino, CA; Haley, Kevin, San Jose, CA; Bhatia, Rakesh, San Jose, CA; Adams, Daniel Thomas, Menlo Park, CA; Kast, Michael Andrew, Palo Alto, CA

**APPL-NO:** 658856 (08)

**FILED-DATE:** May 31, 1996

**GRANTED-DATE:** October 12, 1999

**ASSIGNEE-AT-ISSUE:** Intel Corporation, Santa Clara, CA

**ASSIGNEE-AFTER-ISSUE:** August 12, 1996 - ASSIGNMENT OF ASSIGNEES INTEREST (SEE DOCUMENT FOR DETAILS)., INTEL CORPORATION 2200 MISSION COLLEGE BLVD. SANTA CLARA CALIFORNIA 95052, Reel and Frame Number: 008076/0001  
May 31, 1996 - ASSIGNMENT OF ASSIGNEES INTEREST (SEE DOCUMENT FOR DETAILS)., INTEL CORPORATION 2200 MISSION COLLEGE BLVD. SANTA CLARA CALIFORNIA 95052, Reel and Frame Number: 008127/0385

**LEGAL-REP:** Blakely, Sokoloff, Taylor & Zafman LLP

**PUB-TYPE:** October 12, 1999 - Utility Patent having no previously published pre-grant publication (A)

**PUB-COUNTRY:** United States (US)

**US-MAIN-CL:** 361#699

**US-ADDL-CL:** 165#803, 165#104.33, 361#687, 438#106

**CL:** 361, 165, 361, 438

**SEARCH-FLD:** 165#803, 165#104.33, 165#804, 165#185, 165#104.21-10426, 165#104.29, 257#712, 257#713, 174#152, 174#163, 622#592, 364#708.1, 298#32, 298#41, 298#54, 297#29, 297#39, 297#40, 361#687, 361#694.-703, 361#701,

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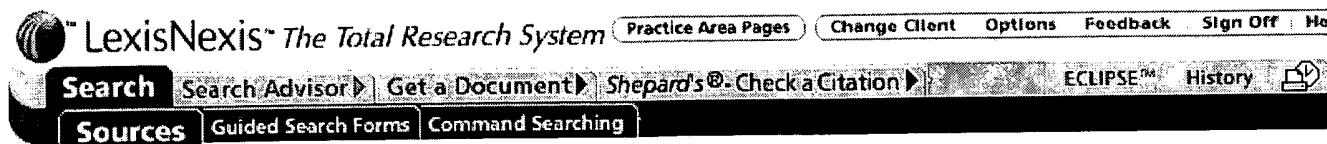
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